Bulletin No 213 Juin 1980

U.R.S.I.

Table des matières - Contents

Pages

R.L. Smith-Rose, 1894-1980..... 1

John Arthur Saxton, 1914-1980..... 3

Yuichiro Aono, 1916-1979..... 4

Hugh C. Webster..... 5

G.A. Woonton..... 5

Samuel Silver Space Sciences Laboratory..... 6

URSI Finances..... 7

XX General Assembly of URSI:Scientific Programme 11

Proceedings of URSI General Assemblies, Vol.XVIII
Erratum..... 14

News from Member Committees:

France..... 14
Nigeria..... 14
Spain..... 14

International Conference on Plasma Physics..... 15

Effects of the Lower Atmosphere on Radio Propagation at Frequencies above 1 GHz: Spare Preprints..... 16

Symposium on Millimeter Wave Technology: Tentative Scientific Programme..... 16

Symposium on Electromagnetic Waves..... 18

Symposium on Signature Problems in Microwave Remote Sensing of the Surface of the Earth 19

National Radio Science Meeting, Boulder,Col..... 19

IEEE International Symposium on Information Theory..... 21

Structure of ICSU..... 23

Marconi International Fellowship..... 27

Names and Addresses of URSI Officers..... 28

R.L. SMITH-ROSE
1894-1980

It is with profound sorrow that we record the death on 19 March 1980 of Dr. R.L. Smith-Rose, C.B.E., an Honorary President of the Union. Reginald Leslie Smith-Rose was born in London on 2 April 1894 and the near-on 86 years of his life thus spanned a very large part of the development of the science of radio. In his Presidential Address in 1963 to the Golden Jubilee meetings of the Union he recalled that in 1913, the year in which URSI's predecessor organisation (the International Commission on Wireless Telegraphy) was established, he was at that time already a member of the Radio Society of Great Britain! His long and distinguished career in radio effectively began immediately after World War I with his appointment to the Electricity Division of the National Physical Laboratory. Later, with the establishment of a separate Radio Division of the Laboratory, Smith-Rose was appointed Superintendent and later again he became Director of the Radio Research Station at Slough.

Smith-Rose first participated in URSI at the Third General Assembly held in Brussels in 1928 at which he presented a major paper critically reviewing post-war work in 'Radio direction finding'. His own involvement with 'RDF' had begun in 1920 when he was given the responsibility by the British Radio Research Board of organizing and directing a long-term study, at some 13 widely spaced sites in the United Kingdom, of the 'nature, magnitude and other characteristics of the variations of bearings of received radio signals'. The results of this study, involving the analysis of about a quarter-million observations, formed a series of R.R.B. Special Reports prepared by Smith-Rose and published between 1924 and 1927. His radio researches in the mid-twenties were also notable for the fact that in cooperation with R.H. Barfield he carried out one of the early experiments positively showing the existence of a radio signal reflected from the upper atmosphere. Thus in a paper published in 1925 Smith-Rose and Barfield discussed the application of direction-finding techniques to detect downcoming signals and in 1926 they published the results of an experiment which demonstrated conclusively the existence of 'waves travelling in a downward direction, evidently the result of deflexion from the upper

atmosphere'. In the decades prior to and including World War II, Smith-Rose's extensive work on RDF problems represented a major personal contribution to the successful development of radio navigational systems and of 'radio location' (the name originally given in the United Kingdom to radar).

Smith-Rose's concern with radio direction finding naturally led him to studies on the electrical properties of the ground and he made important pioneer contributions to knowledge in this area. With the practical extension of the radio spectrum to higher frequencies Smith-Rose later became concerned with tropospheric propagation at UHF and VHF and with various problems in radio meteorology.

Within URSI the breadth of his radio interests and a measure of his important personal contributions, were reflected in the fact that he was elected successively Chairman of two Commissions viz., Measurement Methods and Standards (1952-54) and Radio and Troposphere (1954-60). He was President of the Union in 1960-63 and elected an Honorary President in 1966.

In addition to these official positions within the Union Smith-Rose, over a period of more than 40 years, made many other contributions to the scientific and administrative work of URSI. He was for some years Chairman of the British National Committee for Radio Science and for twelve years he was Secretary-General of the Inter-Union Commission for the Allocation of Frequencies to Radio Astronomy and Space Science (IUCAF).

He was also extensively involved for an equally long period in the work of the International Radio Consultative Committee (CCIR) of the International Telecommunications Union. In 1978 at its fiftieth anniversary celebrations CCIR recognised the long and distinguished services of Smith-Rose with an Anniversary Award. The well-established successful cooperation between URSI and CCIR is due in no small part to Smith-Rose's lifetime of service to both organisations.

For some 44 years (Brussels 1928 to Warsaw 1972) Reginald Smith-Rose and his charming wife Elsie were familiar and highly respected figures at URSI Assemblies. A man of reserved personality, of great integrity and

with the highest standards of courtesy and good manners, he will long be remembered with deep affection by the international radio community.

April 1980 W.J. Granville Beynon

+ + + + +

JOHN ARTHUR SAXTON
1914-1980

On 17 April, URSI lost one of its best-known supporters, Dr. John Saxton who had suffered a severe stroke a few days earlier. To all who knew him, his sudden death will be a great shock, as he had been pursuing his activities with his customary vigour and enthusiasm.

He will be remembered particularly for his participation in Commission F, previously Commission 2, of which he was Chairman for the period 1966-1969. His qualifications for this post stemmed from a distinguished research career in radio propagation through the troposphere, while on the staff of the National Physical Laboratory of the United Kingdom and of the Radio Research Station when this became a separate establishment. In later years he became deeply involved with scientific administration, becoming Director of the Radio Research Station, (which became the Appleton Laboratory) from 1966 to 1977, following a period as Director of the UK Scientific Mission in Washington D.C.

After his retirement from his Appleton Laboratory post, he became even more active in matters relating to the International Radio Consultative Committee, in which he had been the Chairman of Study Group 5 since 1970. As a consultant to the British Home Office he had a considerable influence on telecommunications development, especially aspects related to radio propagation, and was Chairman of two important international preparatory meetings, one for the Broadcasting Satellite Conference in 1977, and the other for the World Administrative Radio Conference in 1979. His competent handling of these daunting tasks was widely acclaimed.

His connections with University teaching were maintained by appointments as a Visiting Professor at University College, London, and a period in a similar post at the University of Texas. The recent award of a Hon.D.Eng. by the University of Sheffield gave him particular pleasure.

His contributions to professional activities were mainly through the Institution of Electrical Engineers, in which he held various positions including chairmanship of the Electronics Division in 1969-70. He became a Vice-President of the IEE in 1978. For his long and distinguished contributions to science and engineering he was awarded the CBE in 1973 and, perhaps his most cherished award, election to the Fellowship of Engineering in 1980.

Up to the time of his illness he was a vigorous Chairman of the British National Committee for Radio Science, and also chaired the URSI Standing Finance Committee and the URSI-CCIR-CCITT Liaison Committee. In earlier years he was a leading figure in the Inter-Union Commission on Radio Meteorology. URSI will sadly miss his wise counsel.

Many participants in URSI Assemblies and other international meetings will also know Dr. Saxton's wife Kathleen and will extend their sympathy to her and the family in their sad and untimely loss.

May 1980 F. Horner

+ + + + +

YUICHIRO AONO
1916-1979

Dr. Yuichiro Aono, the former deputy director of the Radio Research Laboratories in Tokyo, passed away on 20 May 1979, at the age of 63, after a long fight against diseases caused by cerebral apoplexy. He was appointed the technical official of the Radio Physics Commission, Ministry of Education (present RRL's antecedent) in 1941, devoting his efforts to the study of the ionosphere and radio wave propagation. He contributed very much to the development of automatic ionospheric sounder and invention of direct monitoring apparatus of the trans-

mitter waveform. His scientific papers cover a variety of subjects such as the world distribution of ionospheric parameters, HF wave propagation, Antarctic research associated with high latitude ionosphere, rocket-borne ion probes, construction of large parabolic antenna for space research and telecommunications, etc. In addition to his scientific contributions, his administrative service is also to be noted. He was an active representative of the ionosphere discipline from the preparatory stage of the International Geophysical Year; he served as a member of the Special Committee of World-Wide Ionospheric Soundings of URSI as well as an executive member of the International Ursigram and World Days Services.

K. Tao
Director, Radio
Research Laboratories.

(Extracted from IAGA News No 18, February 1980).

+ + + + +

HUGH C. WEBSTER

We note with regret the death, on 28 December 1979, of Professor Hugh C. Webster, formerly in the Department of Physics, University of Queensland, Australia. Professor Webster served for many years as the Official Member for Australia in URSI Commission VIII on Radio Noise of Terrestrial Origin.

+ + + + +

G.A. WOONTON

It is with deep regret that we have received the news of the death of Professor G.A. Woonton, Vice-President of URSI from 1957 to 1963.

An appreciation of Professor Woonton's contributions to URSI will appear in our September 1980 issue.

+ + + + +

SAMUEL SILVER SPACE SCIENCES LABORATORY

Participants at URSI General Assemblies in the 1960's will recall the very active rôle played by Prof. Samuel Silver both in the scientific and in the administrative affairs of the Union. From 1953 to 1960 he was Chairman of the former Commission VI (Waves and Circuits) before being elected to the Board of Officers in 1963. After serving as President of the Union from 1966-1969, he had the unusual distinction of receiving the title of Honorary President from the URSI Council in 1972 immediately after the termination of his period of office as Past President.

Professor Silver served as the first Director of the Space Sciences Laboratory in the University of California at Berkeley from 1960 to 1970. In his honour, the Laboratory was renamed the Samuel Silver Space Sciences Laboratory at a rededication ceremony on 29 May at which William A. Shack, Dean of the Graduate Division, presided. After addresses by the present Director of the Laboratory and senior members of the University staff, a dedicatory plaque and a portrait were unveiled by Mrs Marjorie Silver.

+ + + + +

URSI FINANCES

At the request of the Board, Dr. Minnis prepared the draft accounts for the year 1979 and arranged for their audit by Gimson & Co. of London. The audited Income and Expenditure Accounts for the year ended 31 December 1979, together with the Balance Sheet, are reproduced on the following pages.

During the year the value of the dollar fell by 5% relative to the Belgian franc. Since most of the URSI assets are held in francs, the result has been a "gain on exchange" during the year of $1,538, and a "profit" of $5,565 on the balance at 1 January 1979. These additions should not be regarded as real gains; they merely indicate the increased number of devalued dollars represented by a given number of francs.

The depreciation of the dollar was foreseen in 1978 during the preparation of the budget for the years 1979-1981. The world-wide increase in rates of inflation are, however, greater than expected in 1978 and, as a precautionary measure, the annual allocation towards the 1981 General Assembly Fund was increased to $14,000 on 31 December 1979.

As usual, the balance carried forward on 1 January 1980 is sufficient to cover expenditure in the early months of the year pending the receipt of the annual contributions from Member Committees. The net interest received on the URSI assets in 1979 amounted to $7,000 and represents a useful addition to income.

31 March 1980

W.E. Gordon
Treasurer.

INTERNATIONAL UNION OF RADIO SCIENCE (URSI)

INCOME AND EXPENDITURE ACCOUNT

FOR THE YEAR ENDED 31st DECEMBER, 1979.

	U.S.$	U.S.$	U.S.$
INCOME			
Subscriptions from Member Committees			84,080
Interest in Belgian Francs (Net)	8,244		
Add: Profit on Redemption of Investment	13		
	8,257		
Interest - in U.S. Dollars	435	8,692	
Less: Interest attributable to:			
Pension Fund - Secretary General	1,233		
Balth. van der Pol Gold Medal Fund	437	1,670	7,022
Sale of URSI Bulletin and Proceedings of General Assembly			702
Allocation from UNESCO Subvention to ICSU			8,000
Gain on Exchange (Net)			1,538
			101,342
EXPENDITURE (for further details see schedule attached)			
Meetings and Symposia	19,714		
Publications	18,897		
Grants	1,550		
TOTAL EXPENDITURE ON SCIENTIFIC ACTIVITIES		40,161	
Administration:			
Salaries and Pensions (including Social Security)	45,960		
Office and General Expenses	11,981		
TOTAL EXPENDITURE ON ADMINISTRATION		57,941	
Commission F (Secretariat)		55	
I.C.S.U. Dues for 1979		2,102	
TOTAL EXPENDITURE FOR THE YEAR			(100,259)
EXCESS OF NORMAL INCOME OVER EXPENDITURE FOR THE YEAR			1,083
Add: Extraordinary Income			
Registration Fees Fund (Helsinki Symposium)			
Balance at 1st January, 1979, transferred from "Special Funds"	5,238*		
Add: Supplementary Registration Fees	173	5,411	
Less: Cost of Review of Radio-Science, etc.	1,923		
Deduct: Proceeds of Sales	91	1,832	
		3,579	
Symposium Electro-magnetic Theory in 1977 - Balance of Surplus ($70)		70	3,649
EXCESS OF TOTAL INCOME OVER EXPENDITURE FOR THE YEAR			4,732
BALANCE IN HAND AT 1st JANUARY, 1979.			
B.F. 3,172,406 @ 28.5	111,312		
B.F. 3,172,406 @ 30.0	105,747		
Profit on Devaluation	5,565		
Balance as per Accounts at 31st December, 1979.		105,747	
Add: Profit on Devaluation - as above		5,565	
Revised Balance at 1st January, 1979.			111,312
BALANCE IN HAND AT 31st DECEMBER, 1979.			$ 116,044

* See Note on next page.

INTERNATIONAL UNION OF RADIO SCIENCE (URSI)

INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED 31st DECEMBER, 1979, (CONTINUED)

SUPPLEMENTARY SCHEDULE SHOWING FURTHER
DETAILS OF CERTAIN ITEMS OF EXPENDITURE

	U.S.$	U.S.$
MEETINGS		
Symposia		
Ionisation of Gases (Grenoble)	527	
Electro-magnetic Compatibility (Rotterdam)	1,132	
Information Theory (Grignano)	526	
Solar-territorial forecasts (Boulder)	542	
60th Anniversary Colloquium (Brussels)	4,951	7,678
Scientific Committees		
Radiation Units (Vienna)	552	
IUGG Assembly (Canberra)	437	
Miscellaneous	555	1,544
Other Meetings		
Board of Officers (Brussels)	7,841	
Sterring Committee (Brussels)	2,651	10,492
		19,714
PUBLICATIONS		
URSI Information Bulletin Nos. 208-211	5,310	
Proceedings of 19th General Assembly, 1978	6,491	
Proceedsings of 60th Anniversary Colloquium	6,176	
International Reference Ionosphere 1978 (net)	920	18,897
GRANTS		
IUCAF	1,250	
IUCRM	300	1,550
TOTAL EXPENDITURE ON SCIENTIFIC ACTIVITIES		$ 40,161
OFFICE AND GENERAL EXPENSES		
Office Rent, Heat, Repairs, etc.		2,943
Stationery and Office Supplies		1,167
Insurance		726
Telephone		1,083
Postage		1,274
Bank Charges		366
Entertainment		347
Audit and Accountancy		2,632
Questionnaire (XXth Assembly)		1,103
Administrative travel		305
Miscellaneous		35
		$ 11,981

Note re Registration Fees Fund (Helsinki Symposium)

The Transfer from "Special Funds" in respect of the Registration Fees Fund (Helsinki Symposium) is made up as under:-

		U.S.$
Balance of Fund at 1st January, 1979.		
B.F. 149,275 @ 28.5	5,238	
B.F. 149,275 @ 30.0	4,976	
Profit on Devaluation	262	
Balance as per Accounts at 31st December, 1978.		4,976
Add: Profit on Devaluation - as above		262
Revised Balance of Fund at 1st January, 1979.		5,238

INTERNATIONAL UNION OF RADIO SCIENCE (URSI)

BALANCE SHEET 31st DECEMBER, 1979.

ASSETS	U.S.$	U.S.$	&.S.$
Bank Balances:			
On Deposit Account			
In Belgian Francs	24,562		
In American Dollars	10,000	34,562	
On Current Account			
In Belgian Francs	16,517		
In American Dollars	6,665	23,182	57,744
Belgian Government Securities			99,068
Petty Cash and Stamps			362
Sundry Debtors			994
			158,168
Less: Creditors:			
IUCAF		8,909	
IUCRM		510	
IUWDS		1,592	
Sundry		23,483	(34,494)
			123,674
Special Fund			
Balth. van der Pol Gold Medal Fund			(7,630)
NET TOTAL OF URSI FUNDS			$ 116,044

Represented By:

As at 1st January, 1979. U.S.$ @ 28.5	U.S.$ @ 28.5		1st January, 1980. U.S.$ @ 28.5	As at U.S.$ @ 28.5
		Reserve Fund:		
54,793		Closure of Secretariat		62,175
		Funds for Scientific Activities		
	10,526	XXth General Assembly in 1981	24,000	
	35,088	Scientific Activities in 1980	15,000	
	10,526	Special Symposium Fund	10,070	
56,140	-	Registration Fees Fund (Helsinki Symposium)	3,579	52,649
379		Unallocated		1,220
$ 111,312		Total URSI Balances		$ 116,044

Note:

Subscriptions from Member Committees, and certain other Receipts and Payments which represent amounts originally quoted in U.S. Dollars, have been shewn in the amounts so quoted. In other cases the figures shewn on the above Balance Sheet and attached Income and Expenditure Account represent the amounts actually received or paid in Belgian Francs, or the equivalent thereof at the rate of exchange being used by URSI at the date of the Receipt or Payment concerned, and all such amounts have, for the purposes of these accounts, been converted into U.S. Dollars at the United Nations Official rate of exchange ruling at 31st December, 1979.

REPORT OF THE AUDITORS TO THE MEMBERS OF THE INTERNATIONAL UNION OF RADIO SCIENCE (URSI)

In our opinion the above Balance Sheet and attached Income and Expenditure Account, read in conjunction with the above note, give a true and fair view of the affairs of the International Union or Radio Science at 31st December, 1979, and of the excess of Income over Expenditure for the year ended on that date.

Gimson & Co.

GIMSON & CO.
Chartered Accountants.

22-24, Buckingham Palace Road,
LONDON, SW1W OQP.

25th March, 1980.

XX GENERAL ASSEMBLY OF URSI, 1981

SCIENTIFIC PROGRAMME

The following information complements the preliminary data which appeared in the March 1980 Bulletin. The information is still preliminary, and is given as a matter of general information only.

1. OS1: Open Symposium on Remote Sensing (11-12 Aug 1981)

The Working Group on Remote Sensing is in charge of the Programme. The Working Group members and Commission representatives are as follows:

Chairman	Dr. J.O. Thomas (UK)
Secretary	Dr. D.L. Croom (UK)
Commission B	Prof. P. Checcacci (Italy)
Commission F	Dr. D.T. Gjessing (Norway)
Commission G	Dr. B. Landmark (Norway)
Commission H	Dr. M. Crochet (France)
Co-opted	Dr. G. Valenzuela (USA)
	Dr. D. Barrick (USA)
	Dr. A.P. Mitra (India).

The programme will be planned on the lines outlined below and will consist of invited review papers plus submitted papers describing recent original work.

The purpose of this announcement is to invite those wishing to do so to submit draft titles and 100-word abstracts of papers for consideration for inclusion in the programme of the Symposium. They should be sent to the following address as soon as possible:

Dr. D.L. Croom
Rutherford and Appleton Laboratories
Ditton Park
Slough, Berks. SL3 9JX
United Kingdom.

Tel. : (0753) 44234
Telex : 848369 APPLAB.G.

It is hoped to finalize the programme by December of this year.

The scientific programme of the Open Symposium will consist of papers describing experimental and theoretical work in the following areas:

1. Remote sensing of the sea (including polar oceans)
2. Remote sensing of land (including snow/ice cover of land)
3. Remote sensing of the lower and middle atmosphere
4. Imagery processing in remote sensing.

Papers on other aspects of image science, environmental physics and remote sensing together with application areas concerned with earth's resources, conservation, environmental surveillance and pollution monitoring will also be considered. Papers on the upper atmosphere, ionosphere and magnetosphere are not considered to be within the terms of reference of the Symposium.

2. Joint Scientific Sessions

- Commissions A and B plan to hold a series on the "Interactions of Electromagnetic Waves with Biological Systems" on 13-14 August. The series will mesh with the Annual Meeting of the Bioelectromagnetics Society, held (separately) in Washington on 10-12 Aug. The Chairman of the Organizing Committee is Prof. S. Rosenthal, and Dr. H. Altschuler will ensure liaison with the General Assembly Organizing Committee. The plans are to have traditional summary and review sessions, including tutorials, and workshops.

- The proposed session on "Radio Science as an aid to more efficient use of the spectrum" has been withdrawn as a joint effort of Commissions C and F.

The organizational structure of the following sessions is now known:

- Symposium on"Radio Investigations of the High Latitude Ionosphere, including First Results of EISCAT" (4 half-day sessions planned for 17 and 18 Aug), organized by Commission G, and the part concerning first results of EISCAT organized jointly with Commission H.

Convener: Dr. J.V. Evans, Lincoln Laboratory, Lexington, Mass., USA.

Co-convener for EISCAT results: Dr. T. Hagfors, EISCAT Scientific Association, Kiruna, Sweden.

- "Equatorial Ionospheric Irregularities" (2 half-day sessions planned for 11 and 12 Aug), organized by Commissions G and H.

Convener: Dr. D.T. Farley, Cornell University, Ithaca, New York, USA.

- "Scattering Mechanisms of Radio Waves in the Middle Atmosphere" (1 half day planned for 11 Aug), organized by Commissions F and G.

Convener: Dr. T.E. VanZandt, NOAA, Boulder, Colorado, USA.

Prof. Tanaka, Chairman of Commission J, mentions that the planned sessions on "Hardware for Very Fast Signal Processing" and "Image Processing in Radio Science" will be organized as a single joint technical effort.

3. Scientific Sessions organized by a single Commission

Commission G intends to convene sessions on

- "Influence of the Ionosphere on Radio Systems" (2 half days planned for 14 Aug).

Convener: Dr. E.N. Bramley, Rutherford and Appleton Laboratories, Slough, England.

- "Aeronomic Studies using Digital Ionospheric Sounders" (1 half day planned for 13 Aug).

Convener: Dr. J.R. Dudeney, British Antarctic Survey, Cambridge, England.

- "Ionospheric Modification" (1 half day planned for 13 Aug).

Convener: Dr. J. Fejer, MPI, Lindau, Germany.

Commission H considers organizing sessions on

- "VLF and ELF Wave-Particle Interactions"
- "Terrestrial Kilometric Radiation"
- "Remote Determination of Plasma Wave Spectra"
- "Computer-Aided Plasma Wave Analysis".

+ + + + +

PROCEEDINGS OF URSI GENERAL ASSEMBLIES
VOLUME XVIII

Erratum

Line 12 on page 11 of Volume XVIII should read as follows:

GERMANY, Fed. Rep.:

+ + + + +

NEWS FROM MEMBER COMMITTEES

France

Lors de sa dernière Assemblée Générale, le Comité National Français de Radioélectricité Scientifique a renouvelé son Bureau qui est maintenant composé des personnalités suivantes:

Président:	Dr. M. Petit
Président sortant:	Prof. M.-Y. Bernard
Vice-Présidents:	M. C. Audouin
	M. D. Lombard
	M. P. Misme
Secrétaire Général:	Dr. G. Pillet
Trésorier:	M. M. Sauzade.

Nigeria

The title of the Nigerian URSI Committee has been changed to

The Nigerian Union of Planetary and Radio Sciences (NUPRS).

Spain

The Spanish URSI Committee will hold its first URSI National Symposium in Madrid on 7 and 8 October 1980.

+ + + + +

INTERNATIONAL CONFERENCE ON PLASMA PHYSICS (ICPP-1980)

Nagoya, Japan, 7-11 April 1980

The International Conference on Plasma Physics was organized by the Fusion Research Association of Japan, and co-sponsored by IUPAP and URSI. It was held as a joint conference of two existing series of conferences, the Kiev International Conference on Plasma Theory and the International Congress on Waves and Instabilities in Plasmas. This combined conference, covering both theory and experiment in a wide scope of various plasmas, was very successful. It was attended by 510 participants from 27 countries and 450 papers were presented. There were 40 invited papers, of which 5 were on general topics (Magnetic confinement of plasmas, Problems on space plasmas, Laboratory plasma physics, Astrophysical plasma physics and High energy density plasma physics) and the remaining ones on special topics. Of the 410 contributed papers, 102 were presented in oral sessions, and about 300 in poster sessions. Discussions were very active and fruitful.

The International Organizing Committee, chaired by Academician B.B. Kadomtsev, recognized that the combined nature of the present conference, i.e. theory and experiment, scope from space to laboratory, and combined presentation schemes, was very effective and that these characteristics would be kept in the next conference.

It was decided that the next Conference should be held in Göteborg, Sweden, in June 1982, under the title: 1982 International Conference on Plasma Physics. Professor H. Wilhelmsson, Chalmers University of Technology, was appointed Chairman of the International Organizing Committee for this Conference.

The contributed papers were compiled as Vol.1 of the Proceedings and distributed at the Conference. Vol.2 will include the invited and supplementary papers, together with the final list of participants, and will be distributed to all participants.

Prof. K. Takayama
Chairman,
Local Organizing Committee.

+ + + + +

COMMISSION F SYMPOSIUM ON EFFECTS OF THE LOWER ATMOSPHERE ON RADIO PROPAGATION AT FREQUENCIES ABOVE 1GHz

Lennoxville, Canada, 26-30 May 1980

Availability of spare pre-prints

A limited number of spare copies of the pre-prints for this Symposium are available from the persons named below, at the prices indicated. The publication contains 450 pages with 70 papers.

Dr. K.S. McCormick
Communications Research Centre
P.O.Box 11490, Station 'H'
Shirley Bay
Ottawa, Ontario K2H 8S2
Canada,

or

Dr. P.A. Watson
School of Electrical and Electronic Engineering
University of Bradford
Bradford, West Yorkshire BD7 1DP
England.

Price per copy is 40 Canadian dollars plus 3 dollars for surface postage, or £15 plus £1.20 for surface postage. The appropriate amount is to be paid in local currency directly to Dr. McCormick or Dr.Watson.

+ + + + +

URSI SYMPOSIUM ON MILLIMETER WAVE TECHNOLOGY WITH EMPHASIS ON RADIO ASTRONOMY APPLICATIONS

19-22 August 1980, Grenoble, France

Tentative Scientific Programme (not all speakers have accepted)

Session 1 - Antennas Chairman: Kislyakov (Gorkii)

1. Radome, Astrodome, Site — Hills (Cambridge, UK)
2. Humology, thermal effects, pointing — Baars/Hooghoudt (Bonn)

3. Surface panels and measurements	Findlay (NRAO)
4. Optics of MM-antennas	Morimoto (Tokyo)
5. Submm - Antennas	Leighton (Caltech)

Session 2 - Detector elements Chairman: Wrixon (Cork)

1. Superconducting detectors	Phillips (Caltech)
2. Schottky diode technology	Mattauch (Charlottesville)
3. Schottky diode parameters and mixer performance	Keen (Bonn)
4. Submicron devices	Kelly (Cork)

Session 3 - Radiometer components 1 Chairman: Zimmermann (Bonn)

1. Schottky diode mixers	Kerr (New-York)
2. MM-wave integrated circuits	Schneider (Holmdel)
3. Superconducting receivers	Richards (Berkeley)
4. Fundamental and harmonic solid state oscillators	Archer (NRAO)

Session 4 - Radiometer components 2 Chairman: Haas (Grenoble)

1. Low-noise IF components	Weinreb (NRAO)
2. Acousto-optical spectrometers	x (Japan)
3. Quasi-optical systems	Goldsmith (Amherst)
4. LO-systems for interferometers	x (Berkeley)
5. Bolometers and transmission filters	Ade (OMC, London)

Session 5 - Observing techniques Chairman: Encrenaz (Paris)

1. Gain, pointing calibration, standing waves	Ulich (Tucson)
2. Line calibration	Kutner (Troy)
3. The atmosphere	Salomonovich (Moscow)
4. Astronomers view of mm instrumentation	Downes (Grenoble)
5. Experience with transportable radiometers	de Graauw (ESTEC,Nordwijk)
6. Experience at NRAO 11-m telescope	Gordon (NRAO, Tucson).

For further information, contact

Dr. E.J. Blum,
IRAM,
B.P. 391,
F - 38017 Grenoble Cedex, France.

Telephone: (76) 87.75.61.

+ + + + +

URSI INTERNATIONAL SYMPOSIUM
ON ELECTROMAGNETIC WAVES

26-29 August 1980

This triennial Symposium, organised by URSI Commission B, has developed into a major international event. The Symposium will be held at the Technical University Munich, Theresienstrasse, München, Fed. Rep. of Germany.

Session titles are:

- Bioelectromagnetics
- Arbitrarily shaped diffraction objects
- Periodic structures
- Waves in inhomogeneous media
- Near- and far-field investigations
- Diffractive objects of distinct shape, edge discontinuities, rough surfaces
- Waves in random media
- Inverse scattering
- Open waveguide structures
- Antennas (linear, planar, reflector, arrays, feeds, apertures, sensing and probing).

Registration: Dr. H. Hochmuth,
International URSI Symposium,
Postfach 70 00 73,
D - 8000 München 70, FR Germany.

+ + + + +

URSI COMMISSION F SYMPOSIUM ON SIGNATURE PROBLEMS IN MICROWAVE REMOTE SENSING OF THE SURFACE OF THE EARTH

Lawrence, Kansas, USA, 5-8 January 1981

Subject: Theory and experiments on active and passive microwave sensing of the surface of the Earth (land and sea).

Deadline for Papers: 15 July 1980.

Advance Registration Deadline: 15 November 1980.

Attendance: Meeting limited to 100 participants.

Meeting Record: Digest only. Special Issues of IEEE Transactions on Geoscience Electronics and Remote Sensing and IEEE Journal of Oceanic Engineering.

Abstracts and Requests for Information to:

Professor R. Moore,
Remote Sensing Laboratory,
2291 Irving Hill Road,
Lawrence, Kansas 66045, USA.
Phone: (913)864-4836.
(General information and non-European abstracts)

Professor E. Schanda,
Institute of Applied Physics,
University of Berne,
Sidlerstrasse 5,
CH - 3012 Berne, Switzerland.
Phone: (031) 65 89 11.
(European abstracts).

+ + + + +

NATIONAL RADIO SCIENCE MEETING
12-15 January 1981

As already announced in URSI Inf. Bull. No 212, this open scientific meeting, which is sponsored by the US Committee for URSI, will be held at the University of Colorado, Boulder, from 12-15 January 1981.

Papers on any topic of interest to a Commission are solicited, but the following special topics have been suggested:

Electromagnetic Metrology: Measurements and techniques for electromagnetic interference and compatibility; Remote electromagnetic measurements; Time-domain measurements; Measurements for optical communications.

Fields and Waves: Wave packets and beams in high frequency propagation.

Signals and Systems: Signal processing; Radar and sonar systems; Optical and satellite communications; Communication networks.

Physical Electronics

Electromagnetic Noise and Interference: Natural and man-made noise and interference; The composite noise environment; The effects of noise and interference on system design and performance; EMC-spectrum utilization and management.

Wave Phenomena in Non-ionized Media: Radio meteorology; Remote sensing; Effects of random media; Applications to telecommunication; Theoretical and experimental studies of radio propagation.

Ionospheric Radio and Propagation

Waves in Plasmas: Antennas in plasmas; Plasma double layers; Plasma turbulence and non-linear effects.

Radio Astronomy: Radio observation from space; Low-noise receivers; Millimeter wave techniques.

The deadline for receipt of abstracts is 1 October 1980.

For further information, contact the Steering Committee Chairman:

Prof. S.W. Maley,
Department of Electrical Engineering,
University of Colorado,
Boulder, CO 80309,
USA.

+ + + + +

IEEE INTERNATIONAL SYMPOSIUM ON INFORMATION THEORY

Santa Monica, Calif., 9-12 Feb.1981

Call for Papers

Papers which present new results in information theory and related fields are solicited. Areas to be covered include:

- Communication Systems
- Computational Complexity
- Computer-Communication Networks
- Cryptography
- Data Compression
- Detection and Estimation
- Error-Control Coding
- Pattern Recognition
- Shannon Theory
- Speech and Image Processing
- Stochastic Processes.

As in the past, there will be two kinds of contributed papers: the "long" papers of 30-minute duration and the "short" papers of 20-minute duration. The "long" papers will be accepted on the basis of a full manuscript. The "short" papers will be accepted on the basis of a 500-word summary. Both complete manuscripts and the summaries should be submitted in triplicate together with an abstract suitable for inclusion in the Symposium programme. Manuscripts submitted for consideration as a "long" paper that cannot be accommodated in the programme in this category also will be considered in the "short" paper category unless the author instructs otherwise. Authors should indicate the area of their paper for ease in processing.

Deadline for Papers: 1 July 1980. Acceptances will be made by 1 October 1980. All manuscripts, summaries and abstracts should be sent in triplicate to:

Professor Robert Scholtz
Electrical Engineering Department
University of Southern California
Los Angeles, California 90007, USA.
(213) 741-5546.

General inquiries concerning the Symposium may be directed to:

Professors Izhak Rubin or Kung Yao
System Science Department
4531 Boelter Hall
University of California
Los Angeles, California 90024, USA.
(213) 825-2240.

+ + + + +

STRUCTURE OF ICSU

At present the General Assembly of the International Council of Scientific Unions (ICSU) is held at intervals of two years. Between Assemblies the management of the affairs of ICSU is the responsibility of the Executive Board, which meets twice each year, and of the General Committee which meets annually. The Executive Board is a small body which includes two representatives of the 18 Scientific Unions that adhere to ICSU. The General Committee is a very large body (35 members) since it includes representatives of all the Unions, and 17 other members: the ICSU Officers and elected representatives of the Academies.

In 1947 the only ICSU Unions were seven of the Founder Unions which had been created in the period 1919-23. The Executive Board at that time was the equivalent of the present General Committee and it contained only 15 members, including the seven Union representatives. Because of its relatively small size, it was a more effective body than the present General Committee and, of course, the cost of convening it was very much less.

In order to reduce the size of the present General Committee, ICSU has suggested that it is not necessary for each individual Union to be represented in the Committee. It is proposed instead that the present 18 Unions should be divided into 3 or 4 groups, or "super-Unions", and that each group should designate its representative in the General Committee.

In the field of biology, a super-Union might well be capable of representing the interests of the Biological Sciences Union and the six recently formed Unions which deal with various specialised aspects of biological sciences. On the other hand the Unions on Astronomy and on Geodesy and Geophysics, for example, are the only Unions in their respective fields and, in view of the great diversity in the topics covered by them, it would be inappropriate to suggest that the fields covered by these two Unions, and perhaps also the Union on Geography, could be dealt with adequately by one representative in the ICSU General Committee.

Similar considerations apply to the fields of physics, chemistry and radio science. Each of the Unions concerned

already covers an extremely broad range of subjects and it would be difficult or impossible to find a single person who could successfully deal with such a wide field.

On several occasions URSI and several other Unions have objected to the concept of "super-Unions" and to the loss of direct contact between the Unions and ICSU. However, the proposals will be considered again at the forthcoming General Assembly of ICSU, in September 1980, in the context of discussions relating to changes in the structure of ICSU.

In response to a document recently received from ICSU, URSI has submitted further comments on this subject and these are reproduced below.

Comments submitted by URSI
on ICSU Documents AHGS3/80 and 2/80

Groups / Clusters of Unions

URSI, in common with other Unions, has already expressed the opinion that the concept of "super-Unions", suggested by the Secretary General of ICSU, cannot be regarded as an acceptable solution to finding a more appropriate structure for ICSU. The principal reason for this view is that the absorption of the present Unions into super-Unions, and their disappearance as individual members of ICSU, cannot be justified merely as a means of simplifying the administrative structure of ICSU. Moreover the creation of several super-Unions would tend to reinforce the bureaucratic character of ICSU by introducing an additional barrier between ICSU and the active scientists in the Unions.

If it is considered essential to reduce the membership of the General Committee, an alternative possibility seems worth consideration: namely the inclusion, in the General Committee, of representatives of only the Founder Unions of the International Research Council, which were created in the period 1919-1923. These form three natural groups:

A/ Mathematics, Physics, Chemistry

IUPAC, IUPAP, URSI

B/ Terrestrial and Space Environment

IAU, IGU, IUGG

C/ Biology

IUBS.

Each of the remaining Unions would adhere to one of the Founder Unions, but it would retain its identity and would have the right to present its views to the General Committee through the appropriate Founder Unions.

The inter-relations between the different branches of biology are sufficiently close to ensure that there is an identity of interests among the six biology Unions created since 1955, and this has naturally led to the meetings convened by these Unions just before ICSU General Committee Meetings and General Assemblies. The range and diversity of the subjects covered by the Unions in Groups A and B above are so great that such meetings would probably serve little purpose.

Each Union would retain its present national membership and should be financially self-supporting; it should not be obliged to depend on grants from ICSU for its continued existence. Where there is inadequate support from the Academies of Science to guarantee the financial independence of a Union, it is difficult to justify a policy of reducing the ICSU grants to the largely self-supporting Unions in order to fill the gap left by the Academies.

Structure of Executive Board and General Committee

The proposed addition of a third Union representative to the Executive Board is consistent with the recommendations made by the meeting of Unions in Brussels in March 1979.

With regard to the proposed change to the Nominating Committee, it should be remembered that Inter-Union Commissions are responsible to the Unions which control their activities and not to ICSU, and it seems inappropriate to suggest that the Commissions as well as the relevant Unions should be represented in the General Committee.

The fact that more than half of the ICSU Committees are concerned with the terrestrial and space environment would add to the difficulties of the Nominating Committee if it were obliged "to consider the interests" of ICSU Committees. In order to provide some cohesion in the general policy of ICSU relating to the different

branches of science, the appropriate Unions should be responsible for representing the interests of the Committees.

April 1980.

+ + + + +

MARCONI INTERNATIONAL FELLOWSHIP

URSI has been invited to nominate one or two candidates for the 7th Marconi International Fellowship which will be presented in 1981.

The general criteria governing the selection of the recipient are:

a) the importance of the candidate's contributions to communications, and the value of these to society;

b) the degree to which the candidate's life exemplifies commitment to the application of communications science or technology to bettering the human condition.

On this occasion, candidates will be judged on the basis of their qualifications in either of the following special areas:

1)Contributions to the science or technology of communications, or the applications thereof, for the betterment of the lives of children.

2)Contributions to fundamental knowledge or practical applications of systems that contribute to the betterment of the human condition through communications by non-verbal means.

Nominations should include the following:

a) a statement of why the nominee is considered to be appropriately qualified for the award;

b) biography and list of publications;

c) two or three letters of support;

d) three names and addresses of independent referees who know well the work of the nominee.

Member Committees of URSI which wish to nominate candidates are invited to do so before 31 July 1980. Nominations must be accompanied by the documents referred to above and addressed to Professor Stumpers, Vice-President of URSI (Elzentlaan 11, Eindhoven, Netherlands) with a copy to the URSI Secretariat.

+ + + + +

NAMES AND ADDRESSES OF URSI OFFICERS AND OFFICERS OF MEMBER COMMITTEES

The amendments listed below refer to pages 18-59 of URSI Information Bulletin No 211 (December 1979). A full list of names and addresses will be published in the December 1980 issue. Member Committees are invited to notify the URSI Secretariat before 15 November 1980 of any amendments to the information given in Bulletin No 211 and the present Bulletin.

1) The following amendments refer to the URSI Commissions:

Commission A

Add:

Yugoslavia: Prof. B. Kovačević, Pariske Komune 23, Novi Beograd.

Working Group on Measurements relating to the Interaction of Electromagnetic Fields with Biological Systems

Add:

Members:

Dr. H. Altschuler (ex officio: Past Chairman, Commission A), National Bureau of Standards, Physics Building, Rm B318, Washington, D.C. 20234, USA.

Dr. A.J. Berteaud, Groupe du CNRS, 2 rue Henry Dunant, F - 94320 Thiais, France.

Prof. K.M. Chen, Department of Electrical Engineering, Michigan State University, East Lansing, Michigan, USA.

Prof. L.B. Felsen (ex officio: Chairman, Commission B), Polytechnic Institute of New York, Rt.110, Farmingdale, N.Y. 11735, USA.

Dr.-Ing. D. Gossel, c/o Philips GmbH, Forschungslaboratorium Hamburg, Postfach 540840, D-2000 Hamburg, Federal Republic of Germany.

Prof. A.W. Guy, Department of Rehabilitation Medicine, RJ-30, University Hospital, Seattle, Washington 98195, USA.

Dr. H.R. Korniewicz, Zakład Fizyki Doświadczalnej, CIOP, Plac Konstytucji 2, 00-552 Warszawa, Poland.

Dr. V. Kose (ex officio: Vice-Chairman, Commission A), Physikalisch-Technische Bundesanstalt, Bundesallee 100, D - 33 Braunschweig, Federal Republic of Germany.

Dr. J. Musil, Institute of Hygiene and Epidemiology, Srobarova 48, Praha 10, Czechoslovakia.

Prof. S. Okamura (ex officio: Chairman, Commission A), Japan Society for Promotion of Science, Yamato Building, 5-3-1 Kojimachi, Chiyoda-ku, Tokyo 102, Japan.

Dr. C. Romero-Sierra, Department of Anatomy, Queen's University, Kingston, Ontario, Canada.

Prof. K. Sakurai, Chief, Radio and Opto-Electronic Div., Electrotechnical Laboratory, Ministry of International Trade and Industry, Tanashi, Tokyo, Japan.

Prof. R.B. Smith, Postgraduate School of Studies in Electrical and Electronic Engineering, University of Bradford, Bradford, Yorkshire BD7 1DP, United Kingdom.

Prof. W.E. Voss, Division of Biomedical Engineering and Applied Sciences, Rm. 247 Civil/Electrical Bldg, University of Alberta, Edmonton, Alberta T6G 2G7, Canada.

Dr. P. Weissglass, Chief, Solid State Division, Microwave Institute, Royal Institute of Technology, S-100 44 Stockholm 70, Sweden.

Commission G

Working Groups: G.7 Ionospheric Mapping

Substitute:

Chairman: Prof. K. Serafimov (Bulgaria).

2) The following amendments refer to URSI representatives on other organisations:

FAGS (Federation of Astronomical and Geophysical Services)

Delete:
Prof. R. Coutrez (Belgium).

Insert:

Dr. J.C. Ribes.

3) The following amendments refer to URSI Member Committees:

France

Substitute:

President: Dr. M. Petit, Institut National d'Astronomie et de Géophysique, 77 avenue Denfert-Rochereau, F - 75014 Paris, France.

Secretary: Dr. G. Pillet, CNET, 38 rue du Général Leclerc, F - 92131 Issy-les-Moulineaux, France.

Nigeria

Substitute:

Secretary: Dr. G.O. Ajayi, Department of Electronic and Electrical Engineering, University of Ife, Ife, Nigeria.

4) Changes to addresses in Alphabetical Index:

page 44:

HULTQVIST, Dr. B., Kiruna Geophysical Institute, Box 704, S - 981 27 Kiruna, Sweden. Phone: 0980/122 40. Telex: 8754 GEOFYSK S.

page 45:

KARTASCHOFF, Dr. P., La Pistoule 28, CH - 2036 Cormondrèche, Suisse.

page 50:

PADULA-PINTOS, Prof. V.M., CAERCEM, Julian Alvarez 1218, 1414 Buenos Aires, Argentina.

page 51:

PETIT, Dr. M., Institut National d'Astronomie et de Géophysique, 77 avenue Denfert-Rochereau, F - 75014 Paris, France. Phone: 320 13 30.

page 51:

PIGGOTT, Dr. W.R., 21 Hillingdon Road, Uxbridge, Middlesex, UB10 OAD, United Kingdom.